

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (canceled).

2. (currently amended): A reconfigurable frequency add and drop multiplexer,

including comprising:

a demultiplexer having at least two input ports for receiving two wavelength division multiplexes ~~consisting having~~ of N channels, and at least N+2 output ports, $[[i]]$ for all values of i from 1 to N, the i^{th} output port of said demultiplexer ~~is-being~~ adapted to receive the corresponding i^{th} frequency of a first multiplex received at said first input port, and for any value of i from 3 to N+2, said i^{th} output port of said demultiplexer ~~is-being~~ adapted to receive the $(i-2)^{\text{th}}$ frequency of the second multiplex received at said second input port,

a multiplexer having at least N+1 input ports and at least two output ports, $[[i]]$ for any value of i from 1 to N, the i^{th} input port of said multiplexer ~~is-being~~ adapted to forward the i^{th} frequency to a first output port of said multiplexer, and for any value of i from 2 to N+1, an i^{th} input port of said multiplexer ~~is-being~~ adapted to forward the $(i-1)^{\text{th}}$ frequency to a second output port of said multiplexer, and

optical switches for selectively connecting any i^{th} output port of said demultiplexer, for i from 3 to N , to one of the $(i-1)^{\text{th}}$ input port of said multiplexer, ~~or to~~ the i^{th} input port of said multiplexer, ~~or and to~~ the $(i+1)^{\text{th}}$ input port of said multiplexer,

the first and second output ports of said demultiplexer being each respectively connected to the first and second input ports and to the second and third input ports of said multiplexer, and the $(N+1)^{\text{th}}$ and $(N+2)^{\text{th}}$ output ports of said demultiplexer being each connected respectively to the N^{th} input ports and to the $(N+1)^{\text{th}}$ input port of said multiplexer.

3. (currently amended): The device claimed in claim ~~1~~2, wherein said demultiplexer and said multiplexer are both of the arrayed waveguide grating type.

4. (canceled).

5. (original): The device claimed in claim 2 wherein said optical switches consist of three interleaved stages of optical switches.

6. (original): The device claimed in claim 5 wherein said optical switches are optical amplifiers.

7. (new): The device claimed in claim 5, wherein said three interleaved stages of optical switches comprise:

a first set of optical switches A_i , where i is from 1 to N ;
a second set of optical switches B_i , where i is from 1 to N ; and
a third set of optical switches C_i , where i is from 1 to N ;
wherein the optical switching stage for A_i is configured complementary to B_i , and
wherein the optical switching stage for C_i is configured complementary to B_i .